Amendments of the Claims:

A detailed listing of all claims in the application is presented below. This listing of claims will replace all prior versions, and listings, of claims in the application. All claims being currently amended are submitted with markings to indicate the changes that have been made relative to immediate prior version of the claims. The changes in any amended claim are being shown by strikethrough (for deleted matter) or underlined (for added matter).

1. (Previously presented) A method of detecting missing parts in a workpiece comprising a plurality of parts, comprising the steps of:

a) moving the workpiece relative to a scanning engine;

b) detecting a line image across the workpiece with scanning engine, producing a signal output representative of the line image;

c) deriving a processed signal from the signal output of the scanning engine;

d) comparing the processed signal to a reference signal representing a workpiece without missing parts; and

e) indicating if the processed signal does not match the reference.

2. (Original) The method of claim 1, in which the workpiece is a parallel-link chain, and the missing part is a link in the chain.

3. (Original) The method of claim 1, in which the workpiece is a plurality of parts in a container.

4. (Previously presented) The method of claim 1, in which the deriving step (c) comprises the steps of amplifying an output from the scanning engine and filtering the amplified output.

5. (Original) The method of claim 1, in which the deriving step (c) further comprises the step of extracting a portion of the signal output representing a part of the line image, forming a data analysis window, and the comparison step (d) is performed only on the portion of the image in the data analysis window.

6. (Previously presented) The method of claim 5, further comprising the step of providing scannable indicia on at least one side of the workpiece, in position to be imaged by the scanning engine along with the line image of the workpiece, and the step of extracting uses the imaged scannable indicia as a marker to determine the data analysis window.

7. (Original) The method of claim 6, in which the scannable indicia are bar codes.

8. (Original) The method of claim 6, in which scannable indicia are provided on each end of the workpiece, and the data analysis window is taken between the detected scannable indicia.

9. (Previously presented) The method of claim 1, in which the step of deriving a processed signal comprises producing an integral signal level representing an average level of the signal output of the scanning engine, and the step of comparing comprises comparing the integral signal level to a reference signal level.

10. (Previously presented) The method of claim 1, in which the step of deriving a processed signal comprises converting the signal output of the scanning engine into a number.

11. (Original) The method of claim 10, in which the reference is a number, and the step of comparing comprises comparing the two numbers.

12. (Previously presented) The method of claim 10, in which the number is derived by counting level transitions in the output of the scanning engine across the linear image.

13. (Original) The method of claim 10, in which the number is a binary number in which each bit represents a detection or non-detection of a part.

14. (Original) The method of claim 1, further comprising the step, before the detecting step (b) of illuminating the workpiece.

15. (Original) The method of claim 14, in which the workpiece is illuminated so that light reflects off the workpiece, and the linear image is produced from a reflected light image of the workpiece.

16. (Previously presented) The method of claim 14, in which the workpiece is illuminated from behind, such that the workpiece is between the illumination and the scanning engine, and the linear image is produced by the parts blocking light from the illumination.

17. (Currently amended) The method of claim 1, in which the workpiece is moved continuously relative to the ~~reader~~ scanning engine.

18. (Original) The method of claim 1, in which the workpiece is moved in a start-stop motion relative to the reader, and the line image is detected while the workpiece is stationary.

19. (Previously presented) A missing part detection system for detection of missing parts in a workpiece having a plurality of parts, comprising:

a) a light source for illuminating the workpiece; and

b) a light sensitive array for detecting a line image of the workpiece, produced by said light source, having a signal output representative of the detected line image; and

c) a signal processing circuit having an input coupled to the signal output of the light sensitive array, and an output, such that the signal output of the light sensitive array is compared to a reference signal representative of a complete workpiece without missing parts, and the output of the signal processing circuit producing a signal when the comparison indicates a part is missing.

20. (Previously presented) The missing part detector system of claim 19, wherein the light sensitive array forms a scanning engine.

21. (Previously presented) The missing part detector system of claim 19, in which the workpiece is a parallel-link chain, the missing parts are links in the chain, and there are two scanning engines, one each to scan guide row and non-guide row links of a chain.

22. (Previously presented) The missing part detector system of claim 21, further comprising a chain guide having vertical slots slightly wider than the chain, through which said scanning engines scan said chain links.

23. (Original) The missing part detector system of claim 22, wherein an inside of chain guide is painted black to minimize background reflections.

24. (Original) The missing part detector system of claim 19, wherein the workpiece is positioned within a depth-of-field for said light-sensitive array.

25. (Original) The missing part detector system of claim 19, wherein the signal processing circuit comprises a high pass filter and adjustable trigger level pre-amp.

26. (Previously presented). The missing part detector system of claim 19, wherein the signal processing circuit utilizes mathematical integration of an output signal from said light sensitive array and calculates an area under a measured output curve, and the reference is a voltage.

27. (Original) The missing part detector system of claim 19, wherein the signal processing circuit counts a number of level transitions in the signal output of the light sensitive array, and the reference is a preset value.

28. (Original) The missing part detector system of claim 27, wherein the signal processing circuit includes a variable analysis window that only counts changes within said analysis window, such that signals outside the window are ignored by said analysis system.

29. (Original) The missing part detector system of claim 19, in which the light source is located so that the workpiece is illuminated from a same side as the light sensitive array, such that the line image is detected by reflection of light from the workpiece.

30. (Original) The missing part detector system of claim 19, in which the light source is located behind the workpiece, such that the light from the light source silhouettes the workpiece, and the line image is detected by light blocked by parts or passed where there are no parts.

31. (New) A method of detecting missing parts in a workpiece comprising a plurality of parts, comprising the steps of:

a) moving the workpiece relative to a scanning engine;

b) detecting a line image across the workpiece with scanning engine, producing a signal output representative of the line image;

c) deriving a processed signal from the signal output of the scanning engine;

d) comparing the processed signal to a reference signal representing a workpiece without missing parts; and

e) indicating if the processed signal does not match the reference;

wherein the step of deriving a processed signal comprises converting the signal output of the scanning engine into a number;

wherein the reference is a number, and the step of comparing comprises comparing the two numbers; and

wherein the number is a binary number in which each bit represents a detection or non-detection of a part.

32. (New) A method of detecting missing parts in a workpiece comprising a plurality of parts, comprising the steps of:

a) moving the workpiece relative to a scanning engine;

b) detecting a line image across the workpiece with scanning engine, producing a signal output representative of the line image;

c) deriving a processed signal from the signal output of the scanning engine;

d) comparing the processed signal to a reference signal representing a workpiece without missing parts; and

e) indicating if the processed signal does not match the reference;

in which the workpiece is moved in a start-stop motion relative to the reader, and the line image is detected while the workpiece is stationary.

33. (New) A missing part detection system for detection of missing parts in a workpiece having a plurality of parts, comprising:

a) a light source for illuminating the workpiece;

b) a light sensitive array for detecting a line image of the workpiece, produced by said light source, having a signal output representative of the detected line image; and

c) a signal processing circuit having an input coupled to the signal output of the light sensitive array, and an output, such that the signal output of the light sensitive array is compared to a reference signal representative of a complete workpiece without missing parts, and the output of the signal processing circuit producing a signal when the comparison indicates a part is missing;

wherein the signal processing circuit utilizes mathematical integration of an output signal from said light sensitive array and calculates an area under a measured output curve, and the reference is a voltage.

34. (New) A missing part detection system for detection of missing parts in a workpiece having a plurality of parts, comprising:

a) a light source for illuminating the workpiece;

b) a light sensitive array for detecting a line image of the workpiece, produced by said light source, having a signal output representative of the detected line image; and

c) a signal processing circuit having an input coupled to the signal output of the light sensitive array, and an output, such that the signal output of the light sensitive array is compared to a reference signal representative of a complete workpiece without missing parts, and the output of the signal processing circuit producing a signal when the comparison indicates a part is missing;

wherein the signal processing circuit counts a number of level transitions in the signal output of the light sensitive array, and the reference is a preset value; and

wherein the signal processing circuit includes a variable analysis window that only counts changes within said analysis window, such that signals outside the window are ignored by said analysis system.

35. (New) A missing part detection system for detection of missing parts in a workpiece having a plurality of parts, comprising:

a) a light source for illuminating the workpiece;

b) a light sensitive array for detecting a line image of the workpiece, produced by said light source, having a signal output representative of the detected line image; and

c) a signal processing circuit having an input coupled to the signal output of the light sensitive array, and an output, such that the signal output of the light sensitive array is compared to a reference signal representative of a complete workpiece without missing parts, and the output of the signal processing circuit producing a signal when the comparison indicates a part is missing;

in which the light source is located behind the workpiece, such that the light from the light source silhouettes the workpiece, and the line image is detected by light blocked by parts or passed where there are no parts.